TCT-53

Drug Eluting Stents In Female Diabetic Patients With Acute Myocardial Infarction Undergoing Primary Percutaneous Coronary Intervention

SUYOUNG JANG[1], MYUNGHO JEONG[2], Ji Eun Song[3], Gyeong Sik Chang[4]
[1]Chonnam National University Graduate School of Medical Science, Gwangju, Korea, Republic of, [2]Chonnam National University, Gwangju, Korea, Republic of, [3]Jeonju Presbyterian Medical Center, Jeonju , Korea, Republic of, [4]Chosun University Hospital, Gwangju, Korea, Republic of

Background: The aim of study was to compare different coronary stents used during primary percutaneous coronary intervention (PCI) in female patient with acute myocardial infarction (AMI) and diabetes mellitus (DM).
Methods: We selected 1799 consecutive AMI female patients (68.9±10.2) with DM undergoing primary PCI and divided them into 5 groups based on the types of drug eluting stents implanted. Sirolimus-eluting stent (SES), Paclitaxel-eluting stent (PES), Everolimus-eluting stent (EES), Biolimus-eluting stent (BES), Zotarolimus-eluting stent (ZES). Study end point was 12-month major adverse cardiac events (MACE), a composite of death, fatal and nonfatal myocardial infarction and target vessel revascularization.
Results: Mean Hemoglobin A1c level of SES, PES, EES, BES, ZES was 7.7 ± 1.1%, 7.8 ±1.3%, 7.8 ± 1.1%, 7.6 ± 1.2%, and 7.7 ± 1.2% respectively (p=0.195). 928 patients (51.6%) patients prescribed oral hypoglycemic agents (OHA) and 871 patients prescribed OHA and insulin both.Ejection fraction, systolic blood pressure were no significant difference in five groups. The incidence of 12-month MACE in SES, PES, EES, BES, ZES was 8.3%, 8.9%, 4.2%, 4.5%, and 5.2%, respectively (p=0.02). Kaplan Meier analysis show significant difference between SES and BES (p=0.046), SES and EES (p=0.025), PES and BES (p=0.021), PES and ZES (p=0.039), PES and EES (p=0.011). Independent predictors of one-year MACE were family history (OR 17.06, 95% CI 8.412-34.61, p< 0.001), serum glucose level(OR 0.304, 95% CI 0.140-0.661, p=0.024), serum creatine level (OR 3.933, 95% CI 1.194-12.96, p=0.024).
Conclusions: In female patient with AMI and DM, EES and BES would be better therapeutic option than SES and PES for one-year follow up and this result warranted further long-term follow-up.

TCT-54

Additive Prognostic Value Of The Global Registry Of Acute Coronary Events Score Over Other Risk Scores For In-Hospital Outcome Prediction In Patients Presenting With ST-Elevation Myocardial Infarction Treated With Primary Percutaneous Coronary Intervention

Lorenzo Azzalini[1], Razi Khan[1], Malek Al-Hawwas[1], Raja Hatem[1], Annik Fortier[1], Philippe L. L'Allier[1], Hung Q. Ly[1]
[1]Montreal Heart Institute, Montreal, QC, Canada

Background: Risk stratification is of utmost importance in patients with ST-elevation myocardial infarction (STEMI) treated with primary percutaneous coronary intervention (pPCI). We aimed to compare different risk scores to evaluate their predictive power towards in-hospital outcomes.
Methods: In 241 consecutive STEMI patients referred for pPCI, the GRACE, TIMI, Zwolle, CADILLAC, PAMI, SYNTAX, and residual SYNTAX (rSS) scores were calculated. The endpoints of this study were in-hospital death, major adverse cardiac events (MACE: death, recurrent myocardial infarction and urgent revascularization) and major adverse events (MAE: MACE, heart failure, stroke, acute kidney injury and major bleeding). The C-statistic was utilized for comparisons.
Results: Mean age was 62.2±12.6 years, 77.2% were male and 16.2% diabetics. Mean ejection fraction was 47.8±9.6%. The culprit lesion was the LAD in 38.6% and 44.4% had multivessel disease. All scores were significantly associated with the 3 outcomes on univariate analysis, except the rSS (with death, MACE and MAE). As shown in the Table, the GRACE score showed the highest C-statistic for all endpoints: death (0.8866, 95% CI: 0.8058 to 0.9674), MACE (0.8168; 95% CI: 0.7078 to 0.9258) and MAE (0.7922, 95% CI: 0.7151 to 0.8693). The GRACE score significantly outperformed the other 6 scores for all 3 endpoints (except the Zwolle and CADILLAC risk scores for MAE).

	C-statistic	95% confidence interval of C-statistic	Comparison with GRACE (difference in C-statistic)	p for comparison with GRACE
Death				
GRACE	0.8866	0.8058 to 0.9674	–	–
TIMI	0.7448	0.5791 to 0.9105	-0.1418 (-0.2389 to -0.0447)	0.0042
Zwolle	0.7979	0.6562 to 0.9397	-0.0886 (-0.1648 to -0.0124)	0.0226
CADILLAC	0.6643	0.4967 to 0.8319	-0.2223 (-0.3597 to -0.0848)	0.0015
PAMI	0.7561	0.6221 to 0.8902	-0.1305 (-0.2124 to -0.0485)	0.0018
SYNTAX	0.7076	0.5515 to 0.8636	-0.1790 (-0.3097 to -0.0483)	0.0073
Residual SYNTAX	0.4718	0.2971 to 0.6465	-0.4147 (-0.5877 to -0.2618)	<0.0001
MACE				
GRACE	0.8168	0.7078 to 0.9258	–	–
TIMI	0.6984	0.5651 to 0.8318	-0.1184 (-0.1997 to -0.0370)	0.0043
Zwolle	0.7472	0.6168 to 0.8776	-0.0696 (-0.1386 to -0.0006)	0.0481
CADILLAC	0.6672	0.5344 to 0.8001	-0.1496 (-0.2657 to -0.0334)	0.0116
PAMI	0.7256	0.6048 to 0.8466	-0.0912 (-0.1769 to -0.0055)	0.0371
SYNTAX	0.6889	0.5623 to 0.8156	-0.1278 (-0.2523 to -0.0034)	0.0441
Residual SYNTAX	0.4965	0.3556 to 0.6374	-0.3203 (-0.4636 to -0.1769)	<0.0001
MAE				
GRACE	0.7922	0.7151 to 0.8693	–	–
TIMI	0.6900	0.5983 to 0.7818	-0.1021 (-0.1619 to -0.0424)	0.0008
Zwolle	0.7462	0.6602 to 0.8323	-0.0459 (-0.0973 to 0.0054)	0.0797
CADILLAC	0.7324	0.6460 to 0.8188	-0.0597 (-0.1509 to 0.0314)	0.1989
PAMI	0.7026	0.6191 to 0.7861	-0.0896 (-0.1545 to -0.0246)	0.0069
SYNTAX	0.6949	0.6049 to 0.7848	-0.0973 (-0.1938 to -0.0008)	0.0482
Residual SYNTAX	0.5622	0.4608 to 0.6638	-0.2300 (-0.3467 to -0.1132)	0.0001

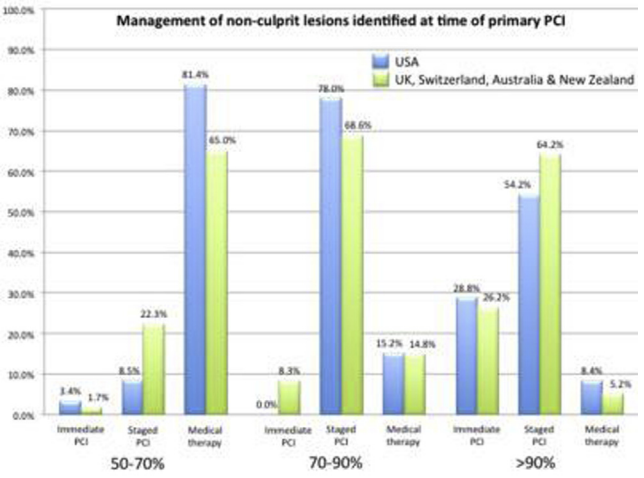
Conclusions: In a contemporary population of STEMI patients treated with pPCI, the GRACE score was the best predictor of in-hospital death, MACE and MAE.

TCT-55

Has PRAMI Changed Practice? An International Survey of Approaches to the Management of Non-Culprit Lesions in Patients Undergoing Primary Percutaneous Coronary Intervention (PCI) for ST-Elevation Myocardial Infarction (STEMI)

Novalia Purnama Sidik[1], Colin Berry[2], ERIC EECKHOUT[3], Eilidh McGinnigle[1], James T. Stewart[4], Keith G. Oldroyd[2]
[1]Golden Jubilee National Hospital, Glasgow, United Kingdom, [2]University of Glasgow / Golden Jubilee National Hospital, Glasgow, United Kingdom, [3]UNIVERSITY HOSPITAL CHUV, LAUSANNE, Switzerland, [4]Auckland City Hospital, Auckland, New Zealand

Background: The recent PRAMI trial has shown that in patients with STEMI, immediate preventive PCI to non-culprit lesions reduced the risk of major adverse cardiovascular events (MACE). We conducted an online survey to assess current approaches and to determine whether the PRAMI results are being translated into clinical practice.
Methods: Email invitations to participate in a SurveyMonkey® questionnaire were sent to interventional cardiologists in the United Kingdom (UK), United States of America (USA), Switzerland and Australia and New Zealand (ANZ).
Results: Of the 288 responses, 146 (50.7%) were from the UK, 59 (20.5%) from USA, 39 (13.6%) from Switzerland, and 44 (15.2%) from ANZ. The majority of respondents opted for medical therapy for lesions of 50-70% severity (n=196, 76.1%) and staged PCI for lesions of 70-90% severity (n=203, 76.6%). In patients with >90% stenosis, 28.2% (n=77) opted for immediate PCI and 65.6% (n=179) for staged PCI. Respondents most frequently opted to perform staged PCI during the index admission for stenoses of >90% severity (n=121, 47.8%) and to delay it for 4-6 weeks for other lesion severities (n=192, 43.7%). Most respondents were either uncertain that immediate preventive PCI prevents MACE (n=119, 41.3%) or did not believe that it does (n=125, 43.4%).



Conclusions: Only a minority of interventional cardiologists are persuaded that preventive PCI reduces the risk of MACE. Furthermore, most would perform staged rather than immediate PCI. Further studies are required to confirm or refute the PRAMI results and to address the optimal timing of PCI to non-culprit lesions.

TCT-56

Correlation Between Residual Platelet Reactivity After Clopidogrel Loading And Long Term Major Adverse Outcome Among STEMI Patients Undergoing Delayed Primary Percutaneous Coronary Intervention

Manolis Vavuranakis[1], Konstantinos Kalogeras[1], NIKOLAOS DAGRES[2], Maria Kariori[3], Maria Lavda[4], Carmen Moldovan[3], Evangelia Bei[5], Dimitrios A. Vrachatis[6], Christodoulos Stefanadis[7]
[1]1st Dept. of Cardiology, Hippokration Hospital, Medical School of Athens, Athens, Greece, [2]2nd Department of Cardiology, University of Athens, Attikon Hospital, athens, Greece, [3]1st Department of Cardiology, Hippokration Hospital, National and Kapodistrian University of Athens, Athens, Greece, [4]1st Department of Cardiology, Hippokrateion Hospital, athens, Greece, [5]1st Department of Cardiology, ATHENS, Greece, [6]1st Department of Cardiology, Hippokration Hospital, Athens, Greece, [7]Athens Medical Center, Athens, Greece

Background: It has been shown that higher Residual Platelet Reactivity RPR (P2Y12-Reaction-Units,PRU>251.5) after clopidogrel loading is associated with larger intracoronary thrombus burden, as well as with impaired myocardial perfusion

after revascularization. We investigated whether RPR is further correlated with long term major adverse clinical events among ST-elevation myocardial infarction (STEMI) patients undergoing an unexpectedly-delayed primary PCI.
Methods: A retrospective observational study was conducted, including patients with STEMI, who were either transferred from a referring hospital or presented directly to our hospital and unexpectedly failed to achieve the goal of a first medical contact-to-balloon time of less than 2h. VerifyNow assay was used to determine RPR after clopidogrel loading. Study population was divided into Low and High RPR groups (PRU< 251.5 and PRU>251.5 respectively) according to the previously published study. Major adverse clinical events (MACE) (cardiovascular death, stroke, myocardial infarction, revascularization) were recorded in long term follow up.
Results: A total of 61 consecutive STEMI patients (mean age 62.13±12 yrs, 48 males) were enrolled in the study. Low RPR group included 38 patients (62.3%), while high RPR group included 23 patients (37.7%). In long term follow up (mean follow-up period 33± 19 months), it was found that among patients with high RPR, MACE were more frequent in comparison with the low RPR group (p=0.043, phi coefficient= 0.3). After adjustment for age, diabetes mellitus and ejection fraction at hospital exit, high RPR group remained an independent predictor of MACE (OR: 4.478, CI: 1.001-20.096; p=0.05). To further investigate the prognostic value of high RPR in clinical outcomes, by Cox proportional hazards regression model, it was shown that high RPR levels, is an independent prognostic factor for MACE-free survival among STEMI patients undergoing primary PCI [hazard ratio: 0.282, 95% confidence interval (0.093–0.854), P = 0.025].
Conclusions: Among STEMI patients undergoing primary PCI, those with initial PRU levels above the cutoff point of 251.1, have higher incidence of major adverse cardiac events during long term follow up.

TCT-57

Chronic Total Occlusion in a Non-Infarct Coronary Artery Exacerbates Prognosis of the Patients with Acute Myocardial Infarction

Yukio Mizuguchi[1], Takeshi Yamada[2], Norimasa Taniguchi[2], Shunsuke Nakajima[2], Tetsuya Hata[3], Akihiko Takahashi[2]
[1]Sakurakai Takahashi Hospital, Kobe, Hyogo, [2]Sakurakai Takahashi Hospital, Kobe, Japan, [3]Sakurakai Tkahashi Hospital, Kobe, Hyogo

Background: Several observational studies suggested that co-existence of the significant stenosis in the non-infarct related coronary artery worsened clinical outcome of the patient with acute myocardial infarction (AMI). However, there is a paucity of data regarding the impact of chronic total occlusion (CTO) in non-infarct coronary artery on prognosis in patients with AMI.
Methods: We retrospectively evaluated 429 consecutive patients with AMI who underwent primary percutaneous coronary intervention in our hospital between January 2008 and December 2012. AMI patients complicated with cardiopulmonary arrest out of the hospital, having the left main trunk culprit lesion, and diagnosed after 24 hours from the symptoms onset were excluded.
Results: Of those, 41 (9.6%) patients had CTO lesions in a non-infarct related artery (CTO patients). Those patients were significantly more likely to be associated with cardiogenic shock (30.2% vs 11.6%; p< 0.01) and to require an extracorporeal membrane oxygenator (ECMO) because of cardiopulmonary arrest in the emergency department or catheterization laboratory (12.2% vs 2.3%; p< 0.001) when compared with patients without CTO lesion (non CTO patients). Intraaortic balloon pumping also is also required in 28 (68.3%) CTO patients. Despite peak creatinine kinase level between 2 groups was similar (2815 U/L vs 2116 U/L), the left ventricular ejection fraction estimated by echocardiography after primary PCI was significantly lower in CTO patients as compared with non CTO patients (45.3% vs 54.8%; p< 0.0001). The in-hospital mortality and 30-days mortality were significantly higher in CTO patients as compared with non CTO patients (19.5% vs 4.6%; p< 0.0001, 14.6% vs 3.4%; p< 0.001, respectively).
Conclusions: AMI patients associated with CTO lesions required more frequent use of assist devices and had significantly poor outcome as compared with those without CTO lesion.

TCT-58

The Optimal Timing of Second Intervention to Non-infarct Related Critical Lesions in STEMI Patients with Multi-vessel Disease Undergoing Primary Percutaneous Coronary Intervention

Menderes Tapsız[1], TANER SEKER[2], Hakan Uçar[1], DURMUS Y. SAHIN[2], ömer şen[3], OYTUN A. BAYKAN[4], mevlüt koç[3], MUSTAFA GUR[2], ZAFER ELBASAN[2], Murat Cayli[5]
[1]Adana Numune Training and Research Hospital, Adana, WA, [2]ADANA NUMUNE TRAINING AND RESEARCH HOSPİTAL, Adana, Turkey, [3]Adana Numune training and Research Hospital, Adana, WA, [4]ADANA NUMUNE TRAINING AND RESEARCH HOSPITAL, Adana, Turkey, [5]Adana numune training and research hospital, Adana, Turkey

Background: There is no clear data in the literature about timing of second percutaneous coronary intervention (PCI) to critical non-culprit lesion after primary PCI (p-PCI). In this study, we aimed to investigate the optimal timing of second PCI to critical non-culprit lesions in STEMI patients who underwent primary PCI with critical multi vessel coronary artery disease(MV-CAD).
Methods: 718 consecutive acute STEMI patients undergoing p-PCI within 12 hours after chest pain onset were evaluated in this study. However, 394 (54.8%) STEMI patients with one vessel disease were excluded from the study. Our study included 324 acute STEMI patients with MV-CAD. The patients were divided into two groups according to the timing of the second PCI to non-infarct related critical coronary artery lesions. Patients who underwent second PCI to non-culprit lesion in the first 15 days was accepted as early secondary PCI group (ES-PCI, n=55); and patients who underwent second PCI to non-culprit lesion after 15 days was accepted as late secondary PCI group (LS-PCI, n=89). The characteristic of p-PCI and second angiography datas were recorded. We evaluated the patients completely before discharge and at the 3rd month.
Results: 182(56.1%)of the 324 acute STEMI patients with MV- CAD underwent the second angiography in 90 day after p-PCI. We performed second PCI only 144 of 182 (79.1%) STEMI patients with MV-CAD.After the p-PCI, LS-PCI group had tending to increase rate of stable angina pectoris (13.5% vs. 3.6%, p=0.053) and had significantly higher acute coronary syndrome (24.7% vs 5,5%, p= 0.003) in compared with ES-PCI group.

Table. Comparison of demographic and clinical variables of patients.

	ES-PCI n:55	LS-PCI n:89	P value
Age (year)	57.66±12.3	57.9±11	0,884
DM, n (%)	6 (22.2)	21 (78.8)	0.058
Chest pain duration (hour)	2.4±1.6	2.1±1.8	0.475
STEMI Type			
Inferior MI (%)	15 (27.2%)	41 (46%)	0.025
Posterior MI (%)	2 (3.6%)	3 (3.3%)	0.933
Inferoposterior MI (%)	9 (16.3%)	11 (12.3%)	0.500
Lateral MI (%)	3 (5.4%)	1 (1.1%)	0.124
Anterior MI (%)	25 (45.4%)	30 (33.7%)	0.159
Inferolateral MI (%)	1 (1.8%)	3 (3.3%)	0.582
Door to balloon time (minutes)	17,9±4,4	18.0±5.1	0,135
EF (%) at 3th month	53.2±12.1	57.1±10	0,135
Timing of second PCI (days)	3.9±3.5	35.5±11.2	**0.000**
Patient presentation			
Asymtomatic (%)	50 (90.9%)	55 (61.8%)	0,000
Sudden death (%)	0 (0.0%)	0 (0.0%)	1,000
Stabil angina (%)	2 (3.6%)	12 (13.5%)	**0,053**
Acute Coronary Syndrome (%)	3 (5.5%)	22 (24.7%)	**0,001**

Conclusions: Step-wise treatment is better treatment strategy instead of complete revascularization during the index PCI for acute STEMI patients with critical MV-CAD.We concluded performing the s-PCI to non-infarct related critical coronary artery lesions in the first 15 days after index intervention.

TCT-59

Improvement in Door-to-balloon times in STEMI by awareness campaigns for Emergency medical services

Divyesh Sharma[1], Huw Griffiths[1], Philip Strike[1], Alex Hobson[1], Ali Dana[1]
[1]Queen Alexandra Hospital, Portsmouth, United Kingdom

Background: Timely Primary percutaneous coronary intervention (PPCI) has repeatedly been shown to be superior to fibrinolytic treatment in randomized control trials. The delay between first medical contact (FMC) and reperfusion ('system delay') is most readily modifiable and predicts outcome. Ambulance service (EMS) has a critical role in pre-hospital diagnosis, triage and timely transfer of these patients to PCI-capable hospitals to minimize delay and optimize outcomes in STEMI patients. In this study, we evaluated the impact of awareness campaign directed at EMS personnel on door-to-balloon times over a 3- year period.
Methods: A series of one-day refresher courses, directed at EMS personnel to increase awareness, were conducted at our center. Data on door-to-balloon times for the patients admitted via Emergency department (ED) or direct to catheterization laboratory was prospectively recorded. The door-to-balloon times for the two groups were compared and the number of patients who breeched the target door-to-balloon times was also recorded.
Results: Out of the 728 patients included in the study, a total of 106 (14.6%) patients breeched the target of < 90 minutes door-to-balloon time. Majority of these patients (88%) (n=93) were admitted via ED for PPCI. In contrast, only 8 out of 484 patients who were directly admitted to the catheterization laboratory breeched the door-to-balloon target. Following the refresher courses, the number of patients admitted via ED for PPCI reduced significantly with a simultaneous increase in the number of patients brought directly to the catheterization laboratory. Overall, median door-to-balloon time in the patients who bypassed ED was significantly lower than those admitted via ED (37 minutes (range 17-132) vs. 83 minutes (range 30-292), p< 0.05). Similarly, median call-to-balloon time was significantly lower in the patients admitted directly to the catheterization laboratory as compared to patients admitted via ED (97 minutes vs.144 minutes, p< 0.05)
Conclusions: This study demonstrates that increasing awareness in EMS personnel results in significant reduction in door-to-balloon times by bypassing ED.